What is claimed is:

1. A method for creating a product definition, comprising:

instancing one or more usage-based product definition inputs;

assessing at least one of an applicability expression, an engineering requirement, and a manufacturing availability expression associated with at least some of the usage-based product definition inputs; and

generating the product definition based on at least some of the usage-based product definition inputs, applicability expressions, engineering requirements, and manufacturing availabilities.

2. The method of Claim 1, wherein instancing one or more usage-based product definition inputs includes instancing a part.

3. The method of Claim 1, wherein instancing one or more usage-based product definition inputs includes instancing a requirement.

4. The method of Claim 1, wherein instancing one or more usage-based product definition inputs includes transforming a coordinate system of a part from a part-centered coordinate system to a product-centered coordinate system.

5. The method of Claim 1, wherein instancing one or more usage-based product definition inputs includes instancing a sub-component having a first configuration, and instancing the sub-component a second time having a second configuration.

6. The method of Claim 1, wherein instancing one or more usage-based product definition inputs includes instancing a predetermined component based on a product class configuration rule.

7. The method of Claim 6, wherein the instancing a predetermined component based on a product class configuration rule includes instancing a predetermined component based on a mandatory configuration rule.

8. The method of Claim 6, wherein the instancing a predetermined component based on a product class configuration rule includes instancing a predetermined component based on a configuration default rule.

9. The method of Claim 1, wherein assessing at least one of an applicability expression, an engineering requirement, and a manufacturing availability expression includes assessing an option expression.

10. The method of Claim 9, wherein assessing an option expression includes assessing at least one of a default option expression, an available option expression, and a not available option expression.

11. The method of Claim 9, wherein assessing an option expression includes assessing an option from an option category associated to a product.

12. The method of Claim 9, wherein assessing an option expression includes assessing at least one of a mandatory option or a mutually exclusive option.

13. The method of Claim 1, wherein assessing at least one of an applicability expression, an engineering requirement, and a manufacturing availability expression includes assessing a configuration rule, the configuration rule being adapted to at least one of validate a configuration specification and populate a configuration specification.

14. The method of Claim 1, wherein instancing one or more usage-based product definition inputs includes instancing a public instance representation of a lower level product by a higher level product.

15. The method of Claim 14, wherein instancing a public instance representation of a lower level product by a higher level product includes filtering the public instance representation through the instance of the higher-level product.

16. The method of Claim 1, wherein instancing one or more usage-based product definition inputs includes instancing in accordance with a configuration at location option by a customer.

17. The method of Claim 1, wherein at least one of instancing one or more usage-based product definition inputs includes instancing in accordance with a unitized manufacturing assembly plan.

18. The method of Claim 1, wherein assessing at least one of an applicability expression, an engineering requirement, and a manufacturing availability expression includes assessing in accordance with a unitized manufacturing assembly plan.

19. The method of Claim 1, further comprising defining a sub-component configuration definition.

20. The method of Claim 1, wherein assessing at least one of an applicability expression, an engineering requirement, and a manufacturing availability expression includes assessing an applicability expression, assessing an engineering requirement, and assessing a manufacturing availability expression.

21. A method for creating an air vehicle definition, comprising:
instancing a usage-based fuselage definition input, the usage-based fuselage definition input including at least one of a fore body definition input, a mid body definition input, an aft body definition input, a wing definition input, a vertical tail definition input, and a horizontal tail definition input;

instancing a usage-based propulsion system definition input;

assessing at least one of an applicability expression, an engineering requirement, and a manufacturing availability expression associated with at least some of the definition inputs; and

5   generating the air vehicle definition based on at least some of the definition inputs, applicability expressions, engineering requirements, and manufacturing availabilities.

22.   The method of Claim 21, wherein instancing at least some of the definition inputs includes transforming a coordinate system of a component from a component-centered 10   coordinate system to an air vehicle-centered coordinate system.

23.   The method of Claim 21, wherein instancing at least some of the definition inputs includes instancing a predetermined component based on a product class configuration rule.

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24.   The method of Claim 23, wherein the instancing a predetermined component based on a product class configuration rule includes instancing a predetermined component based on a mandatory configuration rule.

20   25.   The method of Claim 23, wherein the instancing a predetermined component based on a product class configuration rule includes instancing a predetermined component based on a configuration default rule.

26.   The method of Claim 21, wherein assessing at least one of an applicability 25   expression, an engineering requirement, and a manufacturing availability expression includes assessing at least one of a default option expression, an available option expression, and a not available option expression.

27.   The method of Claim 21, wherein assessing at least one of an applicability 30   expression, an engineering requirement, and a manufacturing availability expression includes
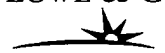
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assessing a configuration rule, the configuration rule being adapted to at least one of validate a configuration specification and populate a configuration specification.

28. The method of Claim 21, wherein instancing at least one of the definition inputs includes instancing a public instance representation of a lower level product by a higher level product.

29. The method of Claim 28, wherein instancing a public instance representation of a lower level product by a higher level product includes filtering the public instance representation through the instance of the higher-level product.

30. The method of Claim 21, wherein at least one of instancing the definition inputs and assessing at least one of an applicability expression, an engineering requirement, and a manufacturing availability expression includes at least one of instancing and assessing in accordance with a unitized manufacturing assembly plan.